

Appl. No. 10/646,525
Amendment dated June 13, 2006

Amendments to the Claims:

This listing of claims will replace the original set of claims in the application:

Listing of Claims:

1-22 (Canceled)

- 1 23. (Previously Presented) A lithographic tool for patterning a substrate,
2 comprising:
3 a spatial light modulator, said spatial light modulator comprising an area
4 array of individually switchable elements;
5 a light source configured to illuminate said spatial light modulator;
6 imaging optics configured to project a blurred image of said spatial light
7 modulator on said substrate; and
8 an image movement mechanism for moving said image across the surface
9 of said substrate.
- 1 24. (Previously Presented) A lithographic tool as in claim 23, wherein said
2 spatial light modulator comprises a digital micro-mirror device.
- 1 25. (Original) A lithographic tool as in claim 23, wherein said light source is a
2 continuous light source.
- 1 26. (Original) A lithographic tool as in claim 23, wherein said light source is an
2 arc lamp.

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- 1 27. (Original) A lithographic tool as in claim 23, wherein said light source is a
2 laser.
- 1 28. (Original) A lithographic tool as in claim 27, wherein said laser is a
2 continuous laser.
- 1 29. (Original) A lithographic tool as in claim 27, wherein said laser is a quasi-
2 continuous laser.
- 1 30. (Original) A lithographic tool as in claim 23, wherein said imaging optics is
2 a telecentric projection lens system.
- 1 31. (Original) A lithographic tool as in claim 23, wherein said imaging optics is
2 configured to form a defocused image of said spatial light modulator.
- 1 32. (Original) A lithographic tool as in claim 23, wherein said imaging optics
2 comprises a diffuser configured to blur said image of said spatial light modulator.
- 1 33. (Original) A lithographic tool as in claim 23, wherein said imaging optics
2 has a numerical aperture adjusted such that said image of said spatial light
3 modulator is blurred.
- 1 34. (Original) A lithographic tool as in claim 23, wherein said imaging optics
2 comprises a microlens array configured to blur said image of said spatial light
3 modulator.
- 1 35. (Original) A lithographic tool as in claim 23, wherein said imaging optics

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- 2 comprises a single projection lens system.

36. (Canceled)

- 1 37. (Original) A lithographic tool as in claim 23, wherein said image movement
2 mechanism comprises a stage on which said substrate is carried.

- 1 38. (Original) A lithographic tool as in claim 23, wherein said image movement
2 mechanism comprises a stage on which said spatial light modulator is carried.

- 1 39. (Original) A lithographic tool as in claim 38, wherein said imaging optics is
2 carried on said stage.

- 1 40. (Original) A lithographic tool as in claim 23, wherein said image movement
2 mechanism comprises rotatable, spaced apart, axially parallel film drums, said
3 substrate being wrapped around and tensioned between said drums.

- 1 41. (Original) A lithographic tool as in claim 23, further comprising a control
2 computer configured to control switching said elements of said spatial light
3 modulator while said image is moving across the surface of said substrate.

- 1 42. (Original) A lithographic tool as in claim 23, further comprising a substrate
2 height measuring system.

- 1 43. (Currently Amended) A lithographic tool for patterning a substrate,
2 comprising:
3 a plurality of spatial light modulators, each of said plurality of spatial light
4 modulators comprising an area array of individually switchable elements;

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5 a light source configured to illuminate said plurality of spatial light
6 modulators;

7 a multiplicity of projection lens systems configured to project a blurred
8 images of each one of said plurality of spatial light modulators on said substrate;
9 and

10 an image movement mechanism for moving said image across the surface
11 of said substrate;

12 wherein the number of said ~~area-arrays~~ spatial light modulators is greater
13 than the number of said projection lens systems.

1 44. (Currently Amended) A lithographic tool as in claim 43, wherein said
2 number of projection lens systems is a submultiple of said number of ~~area-arrays~~
3 spatial light modulators.

45-62. (Previously Canceled)

1 63. (Currently Amended) A lithographic tool for patterning a substrate,
2 comprising:

3 a spatial light modulator, said spatial light modulator comprising ~~at least~~
4 ~~one area~~ an array of individually switchable elements;

5 a light source configured to illuminate said spatial light modulator;

6 imaging optics configured to project a blurred image of said spatial light
7 modulator on said substrate;

8 a light switching mechanism positioned on a light path, said light path
9 going from said light source to said spatial light modulator and ending at said

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10 substrate, said light switching mechanism being configured to control passage of
11 light along said light path; and
12 an image movement mechanism for moving said image across the surface
13 of said substrate.

1 64. (Original) A lithographic tool as in claim 63, wherein said light switching
2 mechanism is a second spatial light modulator.

1 65. (Original) A lithographic tool as in claim 63, wherein said light switching
2 mechanism is a shutter.

1 66. (Original) A lithographic tool as in claim 63, wherein said light switching
2 mechanism is integrated with said light source.

1 67. (Currently Amended) A lithographic tool for patterning a substrate,
2 comprising:
3 a first spatial light modulator, said first spatial light modulator comprising at
4 least one an area array of individually switchable elements;
5 a light source configured to illuminate said first spatial light modulator;
6 imaging optics configured to project an image of said first spatial light
7 modulator on said substrate;
8 a second spatial light modulator positioned on a light path, said light path
9 going from said light source to said first spatial light modulator and ending at said
10 substrate, said second spatial light modulator being configured to control
11 passage of light along said light path; and
12 an image movement mechanism for moving said image across the surface

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13 of said substrate.

1 68. (Currently Amended) A lithographic tool for patterning a substrate,
2 comprising:

3 a plurality of spatial light modulators, each of said spatial light modulators
4 comprising ~~at least two~~ an area array[[s]] of individually switchable elements;

5 a light source configured to illuminate said ~~area-arrays~~ plurality of spatial
6 light modulators;

7 imaging optics configured to project blurred images of each one of said
8 ~~area-arrays~~ plurality of spatial light modulators on said substrate, at least two of
9 said images of said ~~area-arrays~~ spatial light modulators overlapping in register;
10 and

11 an image movement mechanism for moving said images across the
12 surface of said substrate.

69-79. (Canceled)

1 80. (Previously Presented) A lithographic tool as in claim 23, wherein said
2 spatial light modulator is a diffractive device.

1 81. (Previously Presented) A lithographic tool as in claim 23, wherein said
2 spatial light modulator is a liquid crystal device.

1 82. (Previously Presented) A lithographic tool for patterning a substrate,
2 comprising:

3 a plurality of spatial light modulators, each of said plurality of spatial light

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4 modulators comprising an area array of individually switchable elements;
5 a light source configured to illuminate said plurality of spatial light
6 modulators;
7 imaging optics configured to project a blurred image of said plurality of
8 spatial light modulators on said substrate; and
9 an image movement mechanism for moving said image across the surface
10 of said substrate.

1 83. (Previously Presented) A lithographic tool as in claim 82, wherein said
2 plurality of spatial light modulators are arranged in at least one row, said at least
3 one row being perpendicular to the direction of movement of said image across
4 the surface of said substrate.

1 84. (Previously Presented) A lithographic tool as in claim 83, wherein said
2 spatial light modulators are equally spaced within said row.

1 85. (Previously Presented) A lithographic tool as in claim 82, wherein said
2 individually switchable elements are configured in rows and the direction of
3 movement of said image across the surface of said substrate is perpendicular to
4 said rows of elements.

1 86. (Previously Presented) A lithographic tool as in claim 82, wherein said
2 plurality of spatial light modulators are arranged in multiple rows, said rows being
3 perpendicular to the direction of movement of said image across the surface of
4 said substrate.

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1 87. (Previously Presented) A lithographic tool as in claim 86, wherein said
2 spatial light modulators are equally spaced within said rows.

1 88. (Previously Presented) A lithographic tool as in claim 87, wherein the
2 positions of said spatial light modulators are staggered from one row to the next.

1 89. (Previously Presented) A lithographic tool as in claim 88, wherein said
2 spatial light modulators are configured such that each spatial light modulator
3 exposes a non-overlapping swath of said substrate.

1 90. (Previously Presented) A lithographic tool as in claim 82, wherein said
2 plurality of spatial light modulators are configured in a two-dimensional array.

1 91. (Previously Presented) A lithographic tool as in claim 82, wherein said
2 plurality of spatial light modulators are configured to make most efficient use of
3 said imaging optics.

1 92. (Previously Presented) A lithographic tool as in claim 91, wherein said
2 plurality of spatial light modulators are arranged within a roughly circular area.

1 93. (Previously Presented) A lithographic tool as in claim 82, wherein said
2 light source comprises a lens array configured to maximize the light intensity on
3 each spatial light modulator in said plurality of spatial light modulators.

1 94. (Previously Presented) A lithographic tool as in claim 82, wherein said
2 imaging optics comprises one projection lens system for each of said spatial light

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3 modulators.

1 95. (Previously Presented) A lithographic tool as in claim 94, wherein said
2 projection lens systems are telecentric projection lens systems.